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An Analysis of Junior High School Performances of Students Admitted Early and Late in the Ellensburg Public Schools

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AN ANALYSIS OF JUNIOR HIGH SCHOOL PERFORMANCES OF STUDENTS ADMITTED EARLY AND LATE IN THE ELLENSBURG PUBLIC SCHOOLS

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ABSTRACT

The purpose of this study was to analyze the comparative junior high school performances of students who were admitted to kindergarten or first grade (a) at regular age or (b) for early admission because their birthdates were later than the school district's cut-off date of September 10. All students evaluated had attended only the Ellensburg Public Schools. Criteria measures included grade point averages (GPA), achievement tests, and frequency of retentions. Students included in the early and late starting groups were those whose birthdates were between September 10 and February 1. Both groups were arranged into matching sub-groups according to IQ ranges. Early starting groups were compared against their matching late starting groups for differences on the performance measures. Statistical evaluation of the results suggested early admittance to be advisable only for high IQ students when academic achievement and retention at the junior high school level are the criteria. The criterion of high IQ as indicated by local screening policies for early admission to school was thus seen as reasonable.

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CHAPTER I

APPROACH TO THE PROBLEM

Introduction

Since the beginning of compulsory education, educational institutions have struggled with the philosophies of purpose and intent in an effort to provide for an orderly and responsible approach to their task. Who shall be included with those eligible and obligated by the "free" compulsory educational system? When shall they begin? Educationists, anthropologists, physicians, psychologists, and some sociologists have been included in the list of professional men and women directing themselves to the task of making a determination about the "who" and "when". Of specific concern has been the formulation of admission policies which allow for a child to enter school at a time when he is most likely to experience subsequent success. Exceptions to admission policies have been made and subsequent performances studied closely. In spite of many studies, the evidence validating exceptions is not clear.

Statement of Purpose

The purpose of this study was to analyze the outcomes of the early admission practice of the Ellensburg Public Schools during the period 1956 through 1959 as it related to

public school students whose birthdates occurred after September 10 and before February 1. These outcomes were studied in relation to a limited number of factors assumed to be significant in measuring the educational development and school progress of students. Screening procedures were related to these results. Junior high school performances of students originally admitted to kindergarten or the first grade after reaching normal minimum-age requirements were compared with those of students admitted prior to reaching such age.

Definitions of Terms Used

Early admission. Early admission was taken to mean any admission to school of a student not having reached the minimum age requirement for normal admission to the Ellensburg Public Schools. This included any student not reaching the minimum age by September 10 of the school year enrolled. Other studies have used "underage" as an equivalent for "early admission".

Late admission. Late admission is used to describe those students whose birthdates occurred after the cut-off date of September 10 and before February 1. They were thus admitted one year later. The term "overage" is used as an equivalent in other studies.

Background of Theory and Research

In reviewing studies of school admission practice, three major influences seemed to appear: (1) the legal authority, (2) administrative considerations, (3) findings of research studies. These will be discussed independently followed by a summarization.

The Legal Authority

Established regulations created by legal institutions have provided a motivating force for a proliferation of studies, research reports, and theoretical postulates regarding the "readiness" of children to begin school. Educational institutions have desired to maintain close supervision and control of admission practices on a local level to ensure flexibility in providing for local demands. Through reports of studies and postulates they have attempted to regulate or influence the creators of legal statutes which may be binding on education. Through this system of checks and balances, the laws governing education have been designed to accomodate in a practical manner the aims perceived by the legal institutions to be important to the family, community, state, and in a larger sense, to the Republic.

The State of Washington has established provisions for the operation of common schools open for the admission of all children between the ages of six and twenty-one

years (34, RCW 28.58.190). In addition, provisions are made for the establishment of free kindergartens open for admission of all children between four and six years of age, with authority resting with the discretion of local school boards in high school districts only (34, RCW 28.35.010, RCW 28.62.180(4)). Attendance on a full time basis at a legally accepted school becomes compulsory for children on their eighth birthday and continues until their fifteenth birthday (34, RCW 28.27.010). Provisions for exceptions are made but are not pertinent to the current study. Further provisions are made for enrollment in special programs of children three or more years of age who are physically, mentally, socially, or emotionally handicapped and have been retarded in normal educational processes (34, RCW 28.13.050). The foregoing are regulations which have been established in an "enabling" sense, with exceptions made possible through a show of good cause.

The local school district, Ellensburg Public School District No. 401, has further refined admission policies to meet local needs and to coincide with local philosophy. To quote, "no pupil may be enrolled in kindergarten whose fifth birthday does not occur on or before the 10th day of September of the school year during which the child registers to enter school. Exceptions may be approved on the basis of results of special evaluations financed by the parents."

The same phrasing is used in describing admission to the first grade of children six years of age (32, 1). Within these prescribed limits Ellensburg schools "are maintained for all children who reside within the school district, except those who by reason of physical or mental deficiencies cannot be educated with normal children or within the special education facilities that may be provided by the school district" (32, 1). No other conditions of enrollment are prescribed by the local board.

Administrative Considerations

The consideration of requisites for initial admission to school has traditionally focused on the age factor as a key determinant of adequate maturity or readiness for beginning school life. Whatever the admission policy, school administrators have been in the position of having to defend its practice. Perhaps Albert R. Brinkman, as Superintendent of schools in Dobbs Fury, New York, expressed the administrative factor quite well in a letter to one of the professional publications. He wrote:

> An established policy for entrance ages has its elements of defensibility in that it is a protective measure for the best interests of young children. At the same time, a standard practice enables the schoolman to work with a fair and negotiable school policy (33, 34).

On the point of "best interests", other educators have posed different dimensions to the matter of age as a school

entrance determinant. Nimnicht, Sparks, and Mortensen have asked, "Is There a 'Right' Admission Age?", and follow this title question by suggesting that "perhaps this is not the crucial question at all" (24, 43). The point is made that there may be no clear-cut, definitive solution to problems in school admission practices, and that it may be more realistic to think in terms of providing a flexibility of practice that will allow for appropriate learning once the child is admitted.

Findings of Research Studies

Generally speaking, the bulk of study and research with respect to initiating public education of the young has focused on intelligence and chronological age factors as they may correlate with subsequent school performance. While each study may, in some way, differ from each of the others in construction and controls, the conclusions reached were based primarily on intellectual and chronological age rankings as compared to rankings in school performance. A wide disparity in the conclusions reached was noted, especially as groups used for comparison differed in criterion for selection.

The results of the various investigations studied have been categorized as follows: (1) those that support early placement, (2) those that support later placement, (3) those that suggest other operations which make the

results inconclusive, and (4) those that stress sex differences in arriving at tenable conclusions.

Early placement. A study reported in 1930 by Knight and Manuel tended to support early admission to school as a desirable practice (20, 24-26). This was a study in which the progress of two groups of students was assessed through high school. One group had been admitted at six years of age and the other at seven years of age. On the basis of total time spent in school, high school grades, units failed in high school, and age at graduation, the younger group had a more favorable performance. The relative ages at graduation of the younger group was even slightly younger than at the beginning, while the relative ages of the older group remained more constant. This may have been due to a self-selection effect from drop-outs. No consideration of intellectual factors was undertaken.

Handy (14, 31-32, 87) reported in 1938 a study in which mental age factors were applied to a finding that younger students seemed to achieve reasonable to exceptional percentages of the higher grades. His findings seemed to suggest the application of the concept of mental age to school admission policies, and he recommended a minimum mental age of 5-10 (5 years, 10 months) for admittance to the first grade. Birch (5, 84-87) later suggested the use of mental age and IQ in identifying "mentally advanced

students" for early placement. This was intended as a more appropriate approach to the concept of "acceleration" wherein superior students would be afforded opportunities to advance according to their skills. Stake (29, 32-34) established tables of prediction, based on Stanford-Binet Intelligence Scale scores, from which the levels of achievement to be expected from the various mental age groups could be read. He noted, for example, students entering kindergarten between the ages of 4-9 and 5-0 and who had a mental age of 5-2 achieved a grade equivalent of 4.1 by the end of the third grade.

Again, in support of early placement, a widely publicized practice has been reported by Hobson in which mental age has been described as a "workable criterion for school admission." In an initial report in 1948 (15, 312,21) the results of early admittance practices in the Brookline schools was assessed. For the school periods from 1944 to 1947 all students reaching 4-9 and 5-9 by October 1 were admitted to kindergarten and first grade respectively. Students within three months of these ages and with mental ages of 5-2 and 6-2 respectively, on the basis of psychological evaluations, comprised the early admittance groups. These underage admissions, i.e., 4-6 to 4-9 and 5-6 to 5-9, were made with the additional proviso of medical concurrance. Successes were such that the Brookline schools lowered the chronological age level to 4-3 and 5-3 in 1947,

retaining the 5-2 and 6-2 mental age requirement. Hobson subsequently reported in 1963 that these students remained scholastically superior, participated in more extra-curricular activities, achieved more honors, and sought college in greater numbers than did their classmates. He supported the earlier suggestion by Birch that such a program can be "the ideal means of making initial provision for individual differences" (16, 159-70).

In a study aimed at describing the personality characteristics of a junior high school, Symonds and Sherman found that "by and large, the younger pupils in a class were the better-adjusted individuals, and that many overage pupils showed problems of adjustment in many ways" (30, 451). Support of this point was found by Jacobsen in a study of devices used to assess adjustment in children and adolescents. He noted that school achievement and adjustment appeared unrelated to chronological age. Furthermore, "correlations between CA and the achievement variables were low negative, suggesting that whatever little relationship exists between age and achievement favors the younger child" (17, 110).

Later placement. Other investigators have given the advantage to the older students. Many have approached the matter of general school admission age in terms of the

relationship between age at admission and subsequent academic achievement, but with results different from those found by Knight and Manuel. Bigelow (4, 186-92) reported in 1934 a study in which comparisons were made between students who were admitted between the ages of 6-0 and 6-4. Her approach was to compare the younger age group with the next older age group in three categories of achievement. These included above standard, standard, and repeater levels of performance. Grouping all students studied, regardless of other factors, into these levels resulted in loadings at the high and low levels, with about 10 per cent of the students achieving a standard level of performance. She then grouped these same students according to IQ scores obtained at the time of school admission, reporting on only those with IQ scores 100 and over. The under 6-0 group contained more repeaters by about two to one in the 100 to 109 IQ bracket. It was concluded from this study that students below 6-4 at the time of school admission and with less than a 6-0 mental age would have little chance of success. Physical, social, and emotional factors were stressed as overriding influences. Such conclusions do not apply to high intelligence groupings as in the preceding section since they were not studied here.

Partington (25, 298-302) concluded in 1937 that "while many of these brighter children in the youngest group do good work, we find here the largest per cent of those who

are capable of doing better. Apparently a low chronological age is a handicap to many children in school, and with greater maturity they might achieve better results in the same grade with less strain." Hamalainen (12, 406-11) reported that school principals find the underage child significantly more likely to experience scholastic, social, and emotional problems than normal age peers. He compared students entering kindergarten under the age of 4-9 with those entering under normal age requirements and found 24 per cent of the younger group to have experienced adjustment problems as compared to 6 per cent of the older group.

King (19, 331-36) reported retentions of younger students at the rate of ten to one by the sixth grade, and for every thirty-five of the younger students experiencing maladjustments, only six were noted in the older group. These results came from a study of only those students with IQ scores of 90 to 110. Carter (8, 91-103), in favoring the older student, noted that younger students did not appear to make up for beginning lower scores and remained low at a fairly constant level. In a study of a group of students having an average IQ of 111, Baer (2, 17-19) favored the older age group but noted the underage students to be achieving at least average progress. Dickinson and Larson (9, 492-93) concluded that a student having an IQ of less than 100 would run less risk of failing a grade if he were older when he began school.

It should be noted at this point that the cited studies supporting later admittance do not necessarily contradict the studies favoring early placement. Partington and Baer recognized adequate performances by the brighter students but expressed concern over social and emotional effects. By contrast, it has been previously indicated that Symonds and Sherman (30, 449-61) found the younger students to be essentially better adjusted. The only support for later placement comes from studies not dealing specifically with intellectually superior students.

Inconclusive evidence. On the other hand, just as we have seen support for both early and late placement (unless intellectually advanced), there have been studies which suggest the functioning of factors which tend to obscure the significances of chronological and mental age correlates. Handy (13, 46), in an earlier study, found that establishing later cut-off points to "eliminate" a large percentage of failures would have resulted in the elimination of a larger number of students that succeeded. He concluded that "the success of the pupil, therefore, does not depend upon the chronological age, the mental age, or the intelligence quotient," and was lead to consider physical factors.

Nemzek and Finch (23, 778-79), using age as the variable, found a "negligible relationship to the total

honor point average." Miller (22, 257-63) suggested more retentions and immaturities are likely to be found among the younger students, but presented charts which approximated normal distribution in achievement for younger students who had been screened. By the fifth grade, screened students were achieving average and above levels of performance, while the younger group not screened distributed fairly normally in achievement.

Green and Simmons (11, 41-47) attempted to relate the success of students at various age and IQ levels to scores of anticipated achievement. In so doing, however, it was necessary to use different students to show what might have been. They concluded that less mechanical approaches to the matter of individual differences should be explored.

McCarthy (21, 266-69) reported a study in which he attempted to analyze the effects of ten pre-entrance variables upon the school success of underage children. Academic achievement and social adjustment of these children as compared with the older groups was used as a measure of the effects. Pre-entrance variables included psychological, social, physical, educational, and economic factors. Each of the ten variables was shown to have some effect upon the likelihood of academic and social adjustment.

Sex differences. Finally, there are those investigators who have concluded that sex differences must play a

role in considering admission policies. Of relatively recent concern among some members of the educational community has been the observation of an apparent disparity between the successes of boys and the successes of girls in school. Pauley (26, 1-9) has cited examples of these differences and indicated that boys will outnumber girls by as much as two to one in most tabulations of students receiving special help. He "maintains that this excess of boys is due almost entirely to the slower maturity rate of boys." In a later writing (27, 29-31) he suggested an urgent need for higher legal admission age for boys. King (19, 331-36), in speaking of the successes and failures of the younger students, indicated that twice as many of the younger boys will repeat a grade as will be the case for the younger girls. While Pauley has suggested comparative maturity rates, Bentzen (3, 92-98) cited "the greater vulnerability of the male organism to stress" as the major reason for this difference.

Others not so concerned with theories or postulates derived from school performance have posed some interesting considerations by contrast. In an exchange with anthropologist Margaret Mead, Grey Walter discussed the electrophysiological correlates of development and latency, and pointed out that at school entry age "there is a very wide distribution of degrees of cerebral maturity" (31, 83). In response to a

question regarding sex differences, Walter is quoted as saying, "As far as we can see -- we have made quite careful analyses statistically -- none of this scatter relates to sex differences at all; the distribution curves for little boys and girls superimpose quite exactly." (31, 84).

Kagan (18, 156-60) adds yet another dimension to the consideration of sex differences in school. The point is made that while girls typically outperform boys in the elementary grades, they are surpassed in performance as the higher secondary levels of school are reached. The boy's perception of the sex-type character of school shifts toward seeing it as a more masculine activity at the higher levels, as opposed to the early first and second grade perception of an excessively feminine atmosphere. "Since the six year old boy is striving to develop a masculine sex role identification, he resists involvement in feminine situations" (17, 159). Kagan goes on to propose that the introduction of male teachers at the primary level might preclude many of the learning difficulties being experienced by boys.

In a study in which the authors demonstrated an exceptional awareness of the limits of generalizations possible from their data, Gaskill and Fox (10, 33-36) have compared groups of students who failed screening devices, some of which started to school anyway, and some of which delayed one year. The purpose of the study was to test the

usefulness of psychological screening devices. In terms of achievement there appeared to be no significant differences between the total delay and non-delay groups. However, they noted that delay "would appear to be contraindicated for girls" and that there might be a possibility of "acumulative unfavorable impact upon the academic progress of boys who do not delay when compared with later progress of boys who do delay."

Summary

In general, the studies of early admission practices seemingly have roots in the assumption that no student should be admitted to school until he is best prepared or ready for it. Margaret Mead has commented that "we do not know whether starting children to school at the age they are best prepared to go there will produce the maximum effort or not." (31, 89). In a survey of the issues and research regarding entrance age, Ammons and Goodlad (1, 21-26) posed two questions about the elementary school:

> Is it a place where children who are pronounced "ready" are received and moved through a series of tasks deemed essential to schooling? Or, is it a place where children, after several years of assimilating the culture through the home and the immediate neighborhood, are assisted further in the essential process of learning and becoming constructively critical of their culture?

On the latter question, Brunner (7, 22-25) has outlined a program for early school admission for four and five year

old children from "depressed areas." Assuming the "home and immediate neighborhood", in these cases, present an environment in which children incur academic handicaps, early school admission was seen as desirable. Part of the objectives of this program (currently reaching research conclusion) was to have been a determination of the kinds of school experience that would best override limitations imposed by deprived environments.

As has become evident, it has been possible to show statistical evidence that early school admission can be both desirable and undesirable. The degree to which each has been shown has been due, in part, to the nature of the populations selected for the studies and the nature of the populations against which they were compared. For example, young students, or students admitted early, were compared against all other students admitted the same year in terms of school achievement (Hamalainen, Carter, Partington, et al.). Findings favoring the older group were not surprising in the face of commonly accepted developmental and maturity factors. Obviously the less experience one collective group has when compared with another, the less able it is to compete. On the other hand, this comparison says nothing about the competitive ability of the younger bright students. Where others, such as Hobson and Birch, have studied the intellectually superior child specifically,

the results generally favor early admission. In terms of intellectually superior children being affected by early admission differently than by late admission, the cited studies have shown little or no evidence of any negative affects. Whatever small differences appeared in academic achievement tended to favor those having the early start. Research findings, then, tend to justify a policy allowing for exceptionally bright students to be admitted to school at an early chronological age.

Statement of the Problem

The Ellensburg Public School district policy allowed for exceptions to normal cut-off dates for school admission age. The junior high school performances of those for whom exceptions were made were compared to those of like students admitted one year later.

Assumptions and Limitations

Central to the study was the assumption of the school district that it would not be detrimental to educational development for selected students to begin school early. Concern about this assumption led to this study. It was not possible to determine the identity of students who were admitted early on the basis of special evaluations. The effectiveness of screening criteria (see Appendix), where

applied, could not be established. It is not, therefore, intended that the study reflect this in any way. Local screening practices have favored children receiving relatively high rankings on intellectual assessments and pronounced physically well. This led to the use of intelligence test results as a basis for identifying selected students for the study. An average of the IQ scores obtained on the California Test of Mental Maturity, Short Form, at grades 1 and 3 was used for each student as the best measurement data available. Those obtaining relatively high IQ rankings were considered as students most likely having the potential for passing screening procedures had they been administered.

The intelligence scores of the early starting students were found at the lower levels of the scale, although not as frequently, as well as at the upper levels. This suggested the operation of other criteria for early admission. The study was then limited to examination of comparative junior high school performances of the high and low intelligence groups in the early and late starting groups. These performances included grade point average (GPA), achievement test results, and proportions of each group retained a grade. Performances of boys and girls were also compared separately where feasible.

Hypotheses to be Tested

The general hypothesis to be tested states that students admitted early show no significant differences in school performances in junior high school than those admitted one year later. More specifically, the following detailed hypotheses are stated.

1. Students admitted early show no significant differences in (a) GPA, (b) California Achievement Tests (CAT), and (c) proportions retained a grade.

2. High IQ (CTMM) students admitted early show no significant differences in (a) GPA, (b) CAT, and (c) proportions retained a grade than a comparative group admitted one year later.

3. Students admitted early and of average or below IQ show no significant differences in (a) GPA, (b) CAT, and (c) proportions retained a grade than a comparative group admitted one year later.

4. Comparisons of early against late admitted boys and early against late admitted girls show no significant differences in (a) GPA, (b) CAT, and (c) proportions retained a grade.

CHAPTER II

PROCEDURE

Population and Sample

The students for the study were selected from the 1965-66 junior high school enrollment of the Ellensburg Public Schools. All students who (1) were born between September 10 and February 1, and who (2) began and continued all schooling in the Ellensburg schools were included in the study. This allowed for a fairly homogeneous grouping in terms of chronological age. In addition, the possibility of contamination by differing admission criteria and school experience in other school districts was thus eliminated. A total of 125 students meeting this criteria was identified.

Comparison Units

The 125 students selected were divided into early and late starting groups according to age at admission. Further division of these groups was based on intellectual levels.

Early and Late Admission Units

The age of the time of the admission of each student to kindergarten or first grade was determined. Those who had not reached age five on or before September 10 of the

year enrolled in kindergarten were placed in the early starting group. The same was done with those students not having kindergarten and who had not reached age six by September 10 of the year admitted to the first grade. All others were placed in the late starting group. Of the 125 students, 44 were found to have been admitted early while 81 were admitted late. Mean ages at grade 1 (or after 1 year of kindergarten) were computed for the early and late starting groups.

Intelligence Units

The criteria for determining intelligence ranges to be used for grouping was based, in part, on the size of the total group under study. A compromise was necessary to maintain a sufficient number of students in the higher mental ability groupings, and yet maintain the integrity of high ability criterion. The lower limit of the high intelligence group was fixed at an IQ of 125. The lower groupings were split according to commonly accepted definitions of ranges, and included rankings within the average range of intellectual abilities and below. The California Test of Mental Maturity, Short Form, administered at the first and third grade levels was averaged and used to establish the rankings.

The following units to be used for comparison were derived:

CTMM, SF		GROUP I (EARLY) Mean age 5-10	GROUP II (LATE) Mean age 6-8
IQ ≥ 125	(High)	Ia. (n=14)	IIa. (n=14)
IQ - 110-124	(Middle)	Ib. (n = 17)	IIb. (n = 37)
IQ ≤ 109	(Low)	Ic. (n = 13)	IIc. (n = 30)

Assessment Data

To obtain measurement data for comparison, it was assumed that quantified information, contained in student files, which related to school performance was important in assessing school growth. Such information was available from group achievement tests, scholastic grades, and records of promotions and retentions. For each student the following information was extracted:

1. Grade point average for each grade level completed, seventh through ninth, and the accumulative grade point average computed.

2. Grade level scores for each administration of the California Achievement Tests at each grade level, seventh through ninth, including sub-test and total test results.

3. The number of times each student may have repeated a grade, kindergarten through nine, and at which levels.

Analysis of Data

General Considerations

Grade point averages were analyzed at the current grade placement of each student, even if he had repeated a grade, since the grade had meaning only at that level. Achievement test scores, however, were adjusted so that comparison groups included students in each group with an equal number of years in school. No exclusive comparison of ninth grade performances was attempted because the sample size of ninth grade students was relatively small. The number of comparisons within male and female groups was limited for the same reason.

Groups to be Compared

The following comparisons were made using the noted statistical procedure:

Group I vs. Group II, analysis of variance

Group Ia. vs. Group IIa., t-test

Group Ib. vs. Group IIa., t-test

Group Ic. vs. Group IIc., t-test

Male students in Group I vs. male students in Group II.

Female students in Group I vs. female students in Group II.

Measurements

Group comparisons were made on the following measurements:

1. Accumulative grade point average for each student as of the grade completed at year end, seventh through ninth.

2. Grade point average for each of the seventh and eighth grade performances exclusively.

3. California Achievement Test grade level scores (seventh and eighth grade).

4. Proportion of students retained within each component of Groups I and II.

The level of significance for differences was set at .05.

CHAPTER III

RESULTS

This study has investigated the comparative junior high school performances of students initially admitted to kindergarten or first grade prior to policy age and those admitted one year later. This has involved consideration of group intelligence test factors in each group to simulate current standards for exceptions to the policy age. Comparative performances were analyzed statistically in two ways, depending upon the size of the groups being compared. These were analyses of variance (35, 96-97) and t-tests for the difference between means (6, 319-320). Rates of retention for the groups were tested by way of the difference between proportions (6, 346-353). Measurements included grade point averages for scholastic ranking, and group achievement test results for assessment of achievement in reading, arithmetic, and language.

Scholastic Achievement

Table 1 presents the over-all analysis of variance ratio for the early and late starting groups and the means of the sub-groups compared for equivalence of grade point averages. The probabilities for significant differences in the comparisons are shown. No statistically significant

TABLE 1

COMPARISON OF EARLY AND LATE STARTING GROUPS

ON JUNIOR HIGH SCHOOL GRADE POINT AVERAGES

Comparison	Accum. GPA		7th Grade GPA		8th Grade GPA	
	F	p	F	p	F	p
Group I. vs. Group II.	.1702	NS	1.4014	.25	.1551	NS
	M	p	M	p	M	p
Group I.a. (Early-High)	2.91	NS	2.85	NS	3.05	NS
Group II.a. (Late-High)	2.89		2.92		3.07	
Group I.b. (Early-Middle)	2.14	.001	2.17	.001	2.14	.01
Group II.a. (Late-High)	2.89		2.92		3.07	
Group I.c. (Early-Low)	1.91	NS	1.96	.20	1.73	.20
Group II.c. (Late-Low)	2.06		2.17		2.02	
Group I, Males (Early)	2.16	NS	2.19	NS	2.31	NS
Group II, Males (Late)	2.30		2.36		2.21	
Group I, Females (Early)	2.51	NS	2.49	NS	2.66	NS
Group II, Females (Late)	2.47		2.61		2.58	

differences were noted between the total early and late starting groups. This was also true of the comparisons of the high IQ groupings as well as the male comparisons and female comparisons. As might be expected, the middle IQ group starting early showed a significantly lower grade point average than did the high IQ group starting late. In comparing the low IQ groups, differences did not reach the established level of significance (.05). Whatever lesser differences existed seemed to appear in the Grade 7 and Grade 8 individual averages. The late starting students seemed to be favored by a slightly higher level of performance. On an accumulative basis, the figures including Grade 9 students, this tendency was even less noticeable.

Group Achievement Test Performance

Tables of comparisons have been constructed on the basis of concern for achievement in each of the areas of reading, arithmetic, and language, as well as concern for an overall statement of achievement. Table 2 presents the comparisons for grade level achievement as indicated by total test results. With one exception, it can be observed that no significant differences appeared between any of the early and late starting groupings. The middle IQ group starting early again achieved a significantly lower grade level ranking than did the high IQ group starting late.

TABLE 2

COMPARISON OF EARLY AND LATE STARTING GROUPS ON CALIFORNIA ACHIEVEMENT TEST, TOTAL BATTERY

Comparison	7th Year		8th Year	
	F	p	F	p
Group I. vs. Group II.	.6422	NS	.2684	NS
	M	p	M	p
Group I.a. (Early-High)	9.07	NS	10.50	NS
Group II.a. (Late-High)	9.10		10.29	
Group I.b. (Early-Middle)	7.64	.001	8.11	.01
Group II.a. (Late-High)	9.10		10.29	
Group I.c. (Early-Low)	6.82	NS	7.03	.10
Group II.c. (Late-Low	7.17		7.98	
Group I, Males (Early)	7.86	NS	8.36	NS
Group II, Males (Late)	7.96		8.47	
Group I, Females (Early)	7.96	NS	9.05	NS
Group II, Females (Late)	8.36		9.29	

The eighth grade comparisons between the two low IQ groups suggested slight differences, below the level of significance, favoring the late starting group.

Reading

Table 3 presents the comparisons of early and late starting groups according to grade level ranking in reading. As in each of the tables, analysis of variance was used to test for overall differences, and again none was noted. Comparisons of means showed essentially the same differences as in Table 2; i.e., the early middle IQ group did significantly less well than did the later high IQ group. Again a slight difference favoring a later start for the low IQ group was noted, appearing as before at the eighth year of school.

Arithmetic

Table 4 is presented to reflect grade level rankings in arithmetic. It shows a similar comparison pattern to the preceding patterns in achievement. An analysis of variance for the total early and late starting group indicated no significant differences between them. High IQ, male, and female groupings demonstrated no significant differences. The middle IQ group starting early ranked significantly below the high IQ group starting late. Eighth grade performances of the low IQ groups showed slight differences favoring a later start.

TABLE 3

COMPARISON OF EARLY AND LATE STARTING GROUPS ON CALIFORNIA ACHIEVEMENT TEST, READING GRADE LEVEL

Comparison	7th Year		8th Year	
	F	p	F	p
Group I. vs. Group II.	.0579	NS	.2889	NS
	M	p	M	p
Group I.a. (Early-High)	9.47	NS	11.14	NS
Group II.a. (Late-High)	9.61		10.44	
Group I.b. (Early-Middle)	7.91	.01	8.12	.01
Group II.a. (Late-High)	9.61		10.44	
Group I.c. (Early-Low)	7.21	NS	6.96	.20
Group II.c. (Late-Low)	7.11		7.97	
Group I., Males (Early)	8.55	NS	8.44	NS
Group II., Males (Late)	8.24		8.66	
Group I., Females (Early)	8.02	NS	9.25	NS
Group II., Females (Late)	8.55		9.45	

TABLE 4

COMPARISON OF EARLY AND LATE STARTING GROUPS ON CALIFORNIA ACHIEVEMENT TEST, ARITHMETIC GRADE LEVEL

Comparison	7th Year		8th Year	
	F	p	F	p
Group I. vs. Group II.	.0422	NS	.0108	NS
	M	p	M	p
Group I.a. (Early-High)	8.49	NS	10.13	NS
Group II.a. (Late-High)	8.21		9.87	
Group I.b. (Early-Middle)	7.23	.001	7.85	.01
Group II.a. (Late-High)	8.21		9.87	
Group I.c. (Early-Low)	6.59	NS	7.02	.10
Group II.c. (Late-Low)	7.03		8.62	
Group I., Males (Early)	7.46	NS	8.17	NS
Group II., Males (Late)	7.47		8.18	
Group I., Females (Early)	7.52	NS	8.62	NS
Group II., Females (Late)	7.62		8.67	

Language

The results of comparisons on language grade level rankings reflected a somewhat different pattern of raw scores from those presented previously, but significant differences remained the same. Table 5 is presented to summarize the differences noted. An analysis of variance, while not reaching the prescribed level for significance (.05), indicated the possibility of a slight difference existing between early and late starting groups when in the seventh year. Also in the seventh year, a tendency to favor later starting for female students in terms of language achievement was noted at the .10 level of significance. The middle IQ group starting early was again shown to be at a significantly lower level than the high IQ group starting later. Differences were not shown to be significant in the other comparisons of language rankings.

Retentions

Table 6 presents a summary of the number of students in each comparison group, the number of students having been retained a grade, and the probability of each proportionate difference being significant. With a single exception,

TABLE 5

COMPARISON OF EARLY AND LATE STARTING GROUPS ON CALIFORNIA ACHIEVEMENT TEST, LANGUAGE GRADE LEVEL

Comparison	7th Year		8th Year	
	F	p	F	p
Group I. vs. Group II.	2.5030	.25	.8527	NS
	M	p	M	p
Group I.a. (Early-High)	9.10	NS	10.19	NS
Group II.a. (Late-High)	9.41		10.31	
Group I.b. (Early-Middle)	7.75	.001	8.33	.02
Group II.a. (Late-High)	9.41		10.31	
Group I.c. (Early-Low)	7.04	NS	6.95	.10
Group II.c. (Late-Low)	7.38		8.15	
Group I., Males (Early)	7.70	NS	8.21	NS
Group II., Males (Late)	8.13		8.41	
Group I., Females (Early)	8.35	.10	9.15	NS
Group II., Females (Late)	9.07		9.67	

TABLE 6

COMPARISON OF EARLY AND LATE STARTING GROUPS ON RETENTION PROPORTIONS

Comparison	n	No. of Students Retained	p
Group I., (Early)	44	13	.002
Group II., (Late)	81	7	
Group I.a., (Early-High)	14	1	.322
Group II.a., (Late-High)	14	0	
Group I.b., (Early-Middle)	17	5	.032
Group II.a., (Late-High)	14	0	
Group I.c., (Early-Low)	13	6	.032
Group II.c., (Late-Low)	30	7	
Group I., Males (Early)	24	10	.009
Group II., Males (Late)	50	7	
Group I., Females (Early)	20	3	.029
Group II., Females (Late)	31	0	

retentions experienced by the early starting students were significantly more frequent than for those starting late. Proportions of retentions for the high IQ groups, on the other hand, failed to reach the .05 level of significance for difference.

CHAPTER IV

DISCUSSION

Early school admission practices are provided for by local option on the basis of existing local philosophies. The degree to which they are carried out successfully may depend upon how well established policy criteria account for the actual practice. The present study has accounted for students currently enrolled in junior high school (1965-66) who experienced early admission to school. At the time of such admissions, the first experiences with current screening criteria were being realized. The study has also provided local data on comparative performances for early and late starting students which can be related to the information contained in other studies.

Previous studies are frequently used by local districts as the basis for establishing early admission criteria. They have not, however, reflected as reasonable a consensus of opinion as many school officials may desire. Continued emphasis in educational settings on providing for individual differences suggests the importance of careful early admission consideration. Maintenance of records of early admission medical and psychological reports is required. Support of existing local policy as it might be reflected locally by subsequent pupil performance is an important step in maintaining and improving on established and working criteria.

Significance of Results

The first general hypothesis of this study was that there would be no significant differences between students starting early when compared with those of a similar age starting one year later. In terms of grade point averages, achievement test grade levels obtained, and frequency of retentions, a significant difference was noted only in the latter. Rejection of Hypothesis 1(a) thus suggests significantly fewer retentions might be expected from students starting late rather than early. The reader is cautioned against "concluding" on this point as it occurs here as its validity will be discussed shortly. More specific hypotheses were introduced to account for differences in intellectual abilities.

High IQ Comparisons

Germane to this study was the comparison of early and late starting students of high intellectual ability who would be likely to pass screening criteria. It was hypothesized there would be no significant differences between the two groups on any of the measures cited. The results showed this to be the case, with raw data being remarkably similar in most cases. Hypotheses 2(a), (b), and (c) are thus retained.

It should be noted the range of IQ values used for the high IQ groups accounted for approximately 22.4 per cent of

the total number of students in the study. Approximately 31.8 per cent of the early starting group was ranked at this level as opposed to about 17.3 per cent of the late starting group. Two observations are possible: (1) while identifying records indicating screening were not found, early admission practice seems to have favored the intellectually capable; and (2) these percentages far exceed the 1 to 2 per cent expected from strict adherence to policy criteria. In spite of the lowered stratification of the high intelligence factor, the comparative school performances were quite satisfactory. The importance of the preceding observations might be expressed more forcibly by a realization that screening practices would allow only the top three per cent of intellectual abilities to be admitted early. Comparison units for this study allowed for the top 30 per cent and with no apparent ill effects.

Low IQ Comparisons

Another specific hypothesis to be tested was that there would be no significant differences in the average and below IQ group starting early and a like group starting late. The results showed no differences at the prescribed level of significance (.05), except in the matter of frequency of retentions. By the eighth year in school, there were indications that further study of the average and below average student as their performances might be affected by early or

late starting would be appropriate. A lowering of the range used for the low IQ group could better discriminate the potential effects of early and late starting on intellectually handicapped students. Of the three sections of Hypothesis 3, only 3(c) was rejected, and the other two subject to a follow-up in high school.

Other Comparisons

The hypothesis of no differences between the middle IQ group starting early and the high IQ group starting late, had one been presented, was not supported by the data. This comparison was planned as a check on any advantage early starting might have for the middle group. The reasoning was that the IQ range used for the middle group still placed it well above average expectations. If it were thought that scales from which the IQs were obtained ranked students at a spuriously high level, different results should have occurred in comparing the higher ranges of intelligence on the measures used.

No comparisons between male and female performances was attempted since the purpose was to assess early and late starting effects. The comparison of males against males and females against females on this basis was thus accomplished. Only frequencies of retention supported the advisability of later admission at significant levels for both groups, with the male comparison showing the most marked difference. Hypotheses 4(a) and (b) are therefore retained and 4(c) rejected.

Conclusions

It has been noted that retentions appeared as occurring in significantly different proportions between some early and late starting groups. One wonders about this when achievement factors compared at the identical number of years in school showed no differences between the same early and late starting groups. Spithill (28, 40-43), in a study aimed at assessing the effects of "nonpromotion" on achievement and maturation in the junior high, presented evidence of a similar sort. In fact, matched students who were promoted showed better achievement and maturation than did their counterparts who were retained. Such findings cast a considerable doubt on the validity of retentions as a measure of school success. Other variables such as the teacher being able to justify a retention by observing the student to be "immature anyway" would be sources of contamination.

In Chapter I it was noted that the underlying assumption in establishing early admission criteria must be that such admission will not be detrimental to educational development. To the extent that subject grades, achievement tests, and frequencies of retentions are measures of school performance, this study has shown that early starting, intellectually capable students performed essentially as well as their later starting counterparts. Inspection of the data

shows their performances to be well above all groups other than their comparison group. When early admission is seen as a way of accounting for individual differences, there would seem to be little to recommend delay for students meeting screening criteria based on intellectual factors. The early admission policy of the Ellensburg School District is thereby supported.

Relationship of Results to Research Findings

Consistency with other findings favoring early admission was noted in the current results. The intelligence factor, after the fact, was the only control currently possible. With the addition of physical development controls such as has been cited by Hobson (16), performances superior to any other stratified group could be expected.

While the primary concern was for the extreme groupings, it may be observed that the middle IQ group ranged from 110 to 124. Even so, it has been shown these students may do better in school if admission occurs later. This observation was made from data not pertinent to the current study but which seemed to confirm those studies favoring later admission of students other than those of high intellectual superiority.

While no essential differences were noted between the performances of girls and boys when compared against themselves as early and late starters frequencies of retention,

whatever this means, for the boys was marked. This result confirms evidence presented by investigators such as Pauley (26 and 27). Students retained had one more year of school than others when the grade point averages used in the current study were obtained. However, achievement test results obtained at identical numbers of years in school did not reflect the disparaties among the early and late starting boys as was shown by Pauley. It is left to a future study to examine the comparative developmental growth of boys and girls. Inspection of the current raw data for this sample, however, does not suggest the emergence of speeded academic growth of boys in relation to girls as indicated by Kagan (18).

Finally, neither the current study nor the cited studies arrive at a comparison of truly equated groups. While Hobson's selected students may accomplish academic work at superior levels, he has not compared them with a group equally as carefully selected but admitted one year later. The hazards of late groupings on any other basis are so great as to risk contamination of the comparisons. Obviously if one selected the top one or two per cent of those in any given population, chances are there would be no one left to surpass them in any event. Should a rigorous test of the effects of early and late admission be essential, a study which could assemble a screened population which was then randomly assigned to early and late starting groups should provide

some rather exact data. The caveat suggested by Handy (13) should be entered again. In effect it is a reminder that efforts to eliminate failures among students who may wish to enter early will also eliminate a larger number of students who could start school early and conceivable realize distinct unforeseen advantages. Obviously, if no early admissions were allowed there would be no failures as a result of early admission. Likewise, a larger number of students who would benefit from early admission are denied this opportunity.

CHAPTER V

SUMMARY

The present study has been an investigation of the comparative junior high school performances of students beginning kindergarten and first grade early at a time of newly established criteria. Examination of records indicated that exceptions to this criteria were made. When the early starting students were ranked according to likelihood of meeting screening requirements (based on CTMM IQs) and compared with like groupings admitted one year later, there were no significant differences between those most likely to have qualified. The measures used were the existing measurement techniques used by the Ellensburg Public Schools in observing pupil progress. These included grade point averages, California Achievement Test results, and records of grade retentions.

For the purposes of this study, early admission for children of high intellectual ability has been shown to have no apparent detrimental effect on subsequent school performance. It was further shown that early admission may well be contraindicated for most other groups of less than high intellectual ability. The possibility of an accumulative negative as these students progress through high school has not been demonstrated nor has it been discounted. If it exists,

the negative effects may prove to be contributed to more by the boys than by the girls as has been suggested by Gaskill and Fox (10).

Finally the evidence elicited by this study supports assessed intelligence as a reasonable criterion for local use in a policy covering early admission for the very intellectually superior child. Rigorous adherence to current policies allowing early admission should prove a productive practice in accounting for individual differences. Maintenance of records indicating use of criteria in the admission of a child is essential to any subsequent study. Additional study of possible differences in local boys' and girls' academic development is suggested. More importantly, however, another study of the elementary school progress of students actually having met the prerequisites of local screening policy seems justified.

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APPENDIX

APPENDIX

Kittitas County school officials, in an effort to avoid an arbitrary regulation for enrolling children in the first grade based on chronological age alone, have agreed to permit entrance of under-age children when certain evidences of exceptional maturity are apparent.

The following criteria have been set up as a guide to those qualities of maturity which we feel are necessary for an under-age child to properly adjust to the tasks of school.

1. Sixth birthday must occur between the opening day of school and December 31st.

2. An intelligence quotient on the Stanford-Binet of at least 130 or a mental age of seven years four months, or be above an equivalent proportion of children in ability shown on the W. I. S. C.

3. Results of a vocabulary test which shows strong verbal power.

4. Evidence of adequate speech patterns.

5. A high quality of social maturity.

6. A high level of emotional maturity.

7. Medical evidence of physical readiness for first grade. Adequate physical health and development.

Your recommendation, together with that of a physician, will be used to provide a basis for school enrollment for this child.

Kittitas County School Administrators

_____

Because I recognize in this child the qualities stated in the criteria listed above, I recommend that he be considered for enrollment in school at this time.

_____

(This letter is for the Certified Psychologist)